Rebekka Füllemann, Janne Berger

SURVIVAL ANALYSIS

NCIT:C3355 Respiratory System Neoplasm

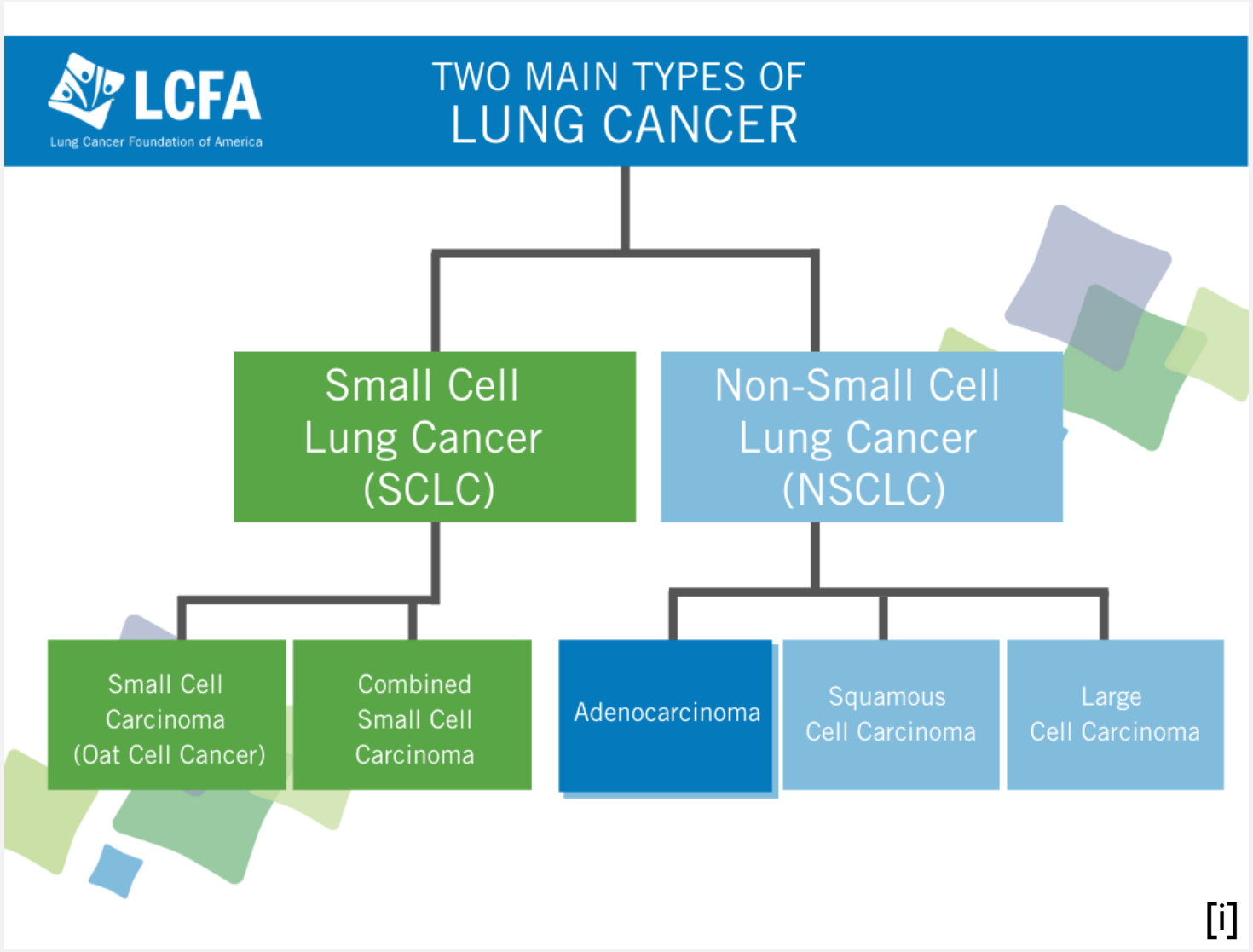
RESPIRATORY SYSTEM NEOPLASM

- A benign or malignant, primary or metastatic neoplasm involving the respiratory system (Tracheal, Lung, Bronchial) [1]

- Lung cancer is the number one cause of cancer deaths among men and women worldwide [2]

- Our final dataset contains information about various lung carcinomas

- Carcinoma is cancer that forms in epithelial tissue


LCFA
Lung Cancer Foundation of America
TWO MAIN TYPES OF
LUNG CANCER
Small Cell
Lung Cancer
(SCLC)
Non-Small Cell
Lung Cancer
(NSCLC)
Small Cell
Carcinoma
(Oat Cell Cancer)
Combined
Small Cell
Carcinoma
Adenocarcinoma
Squamous
Cell Carcinoma
Large
Cell Carcinoma

OVERVIEW DIAGNOSES

- C3493 Squamous cell lung Carcinoma
- C3512 Lung Adenocarcinoma
- C4038 Lung Carcinoid Tumor
- C4450 Lung large cell Carcinoma
- C4917 Lung small cell Carcinoma
- C5672 Lung large cell neuroendocrine Carcinoma
- C9133 Lung adenosquamous Carcinoma

DATASETS

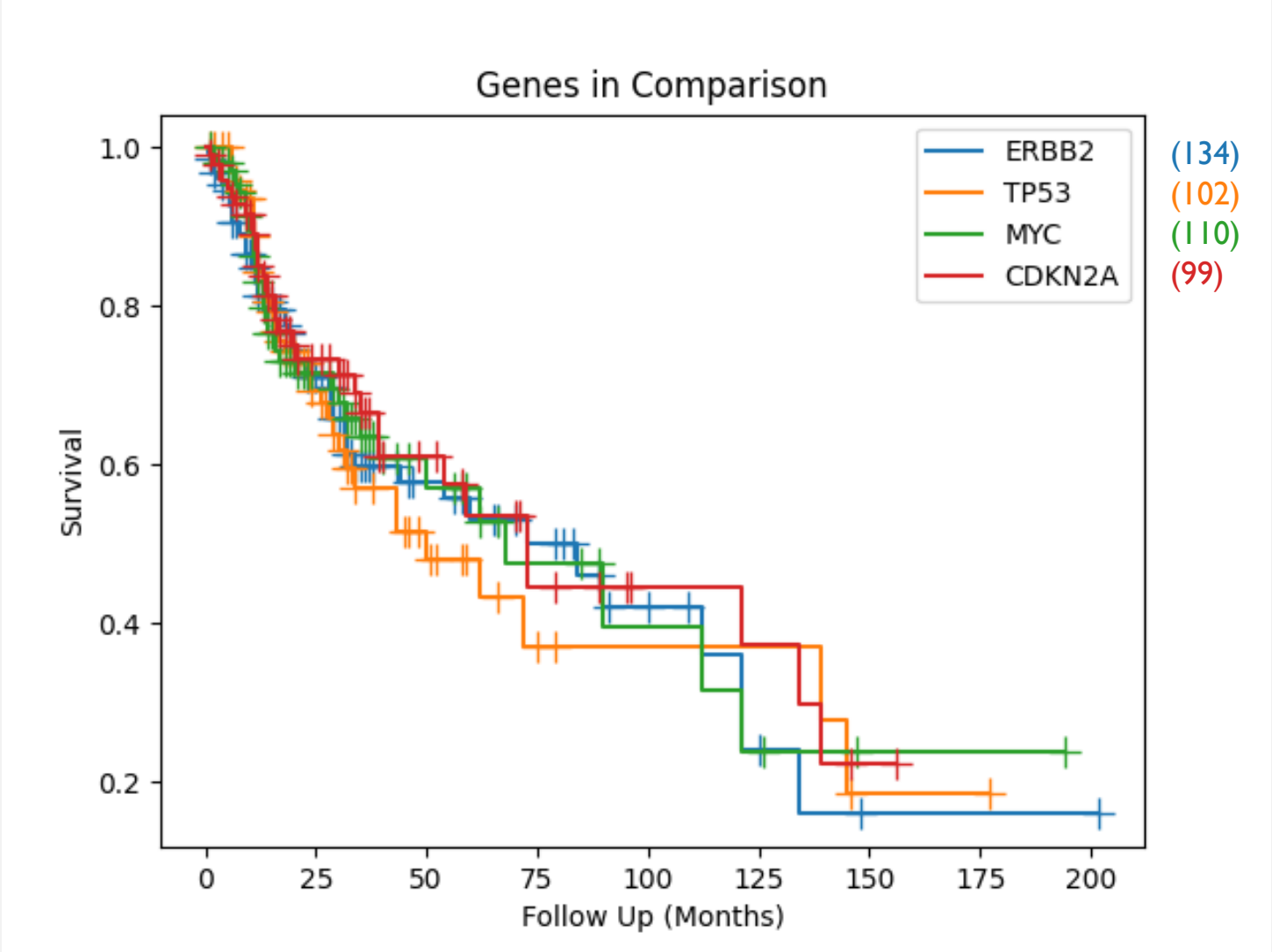
- **“lung.csv”: contains all information about patiens**

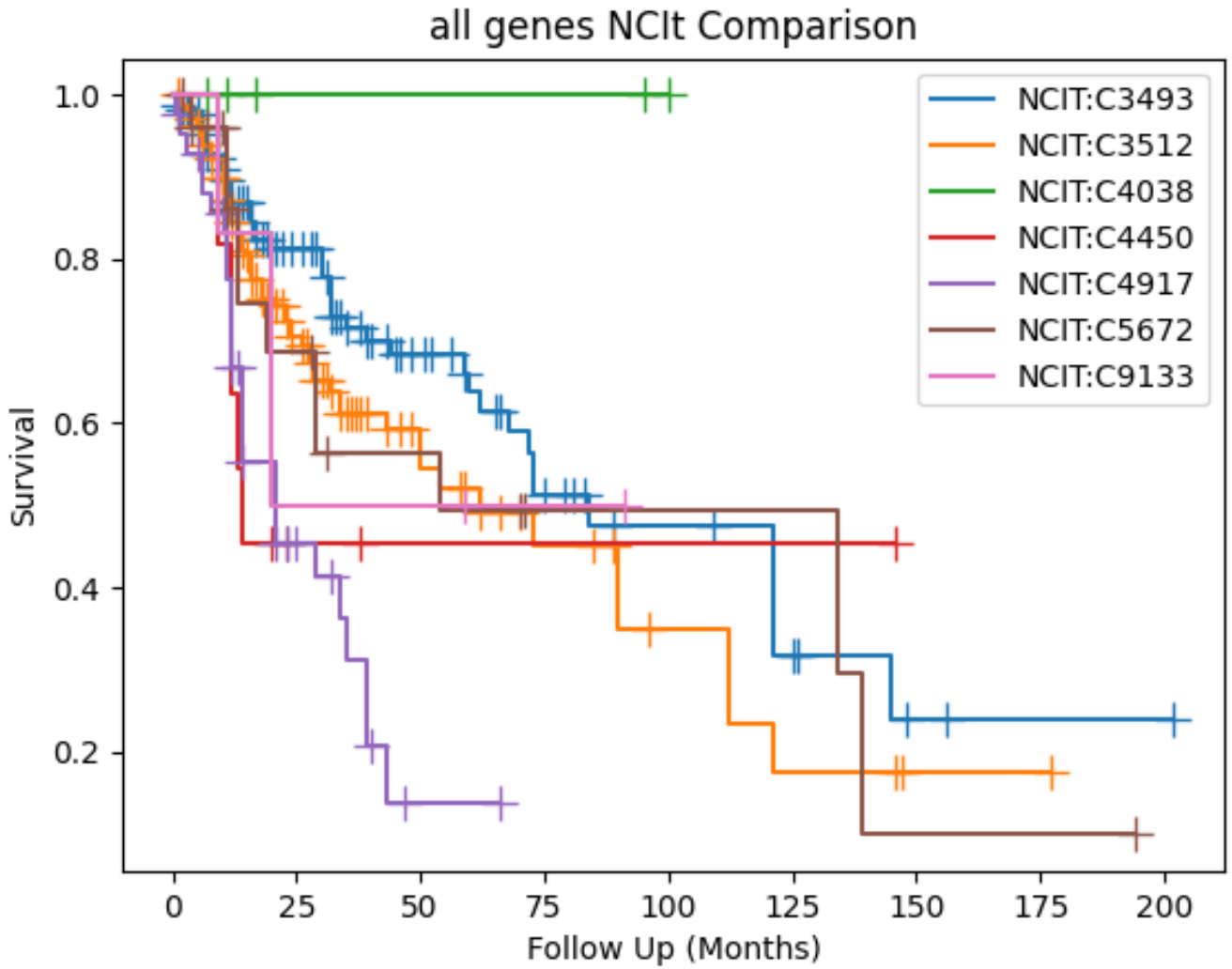
- **“ERBB2.tsv”: contains information about patients with copy number gain in that gene**
- **“MYC.tsv”: contains information about patients with copy number gain in that gene**

- **“TP53.tsv”: contains information about patients with copy number deletion in that gene**
- **“CDKN2A.tsv”: contains information about patients with copy number deletion in that gene**

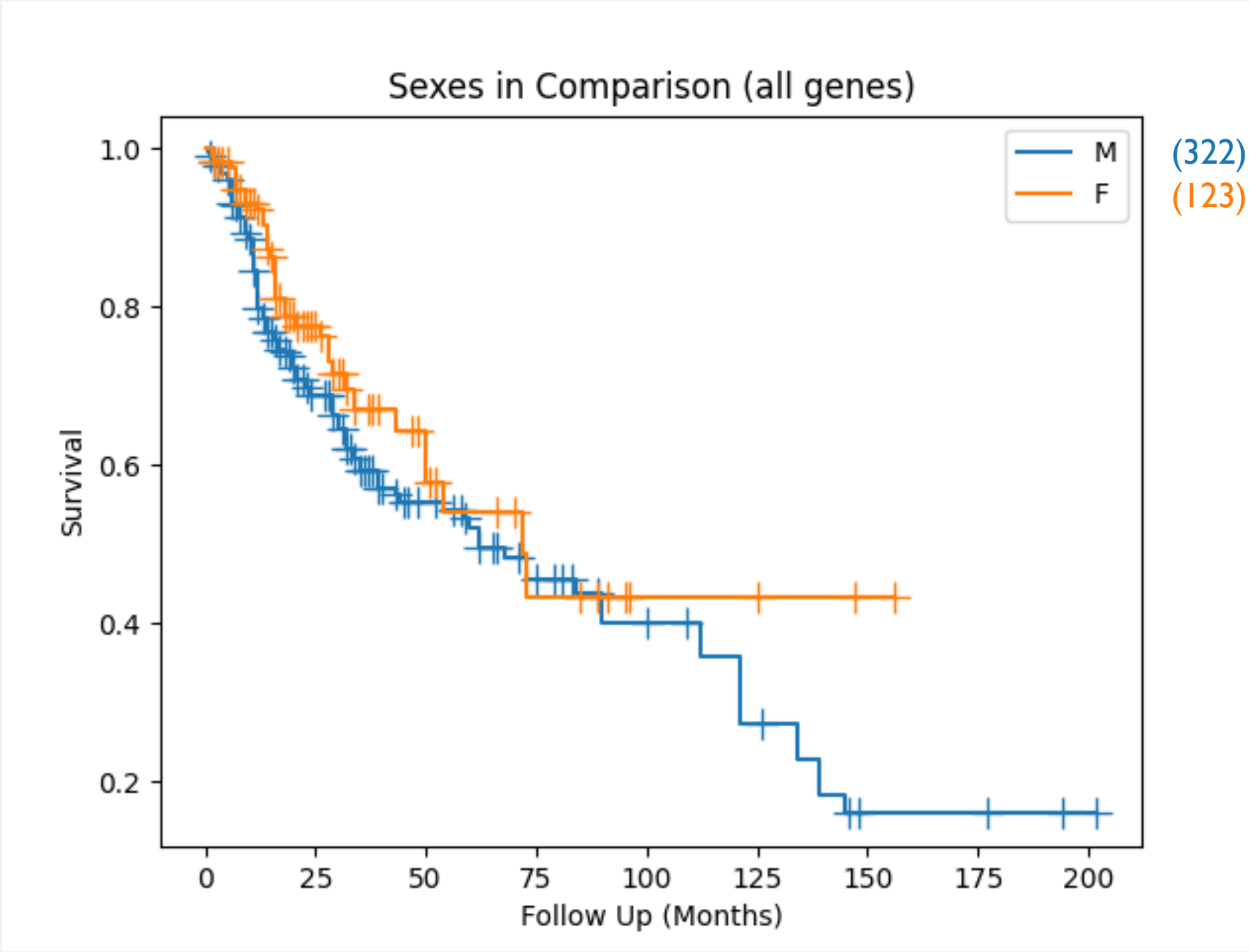
- **Merge of “lung.csv” with “genes.tsv” leads to final dataset for analysis**

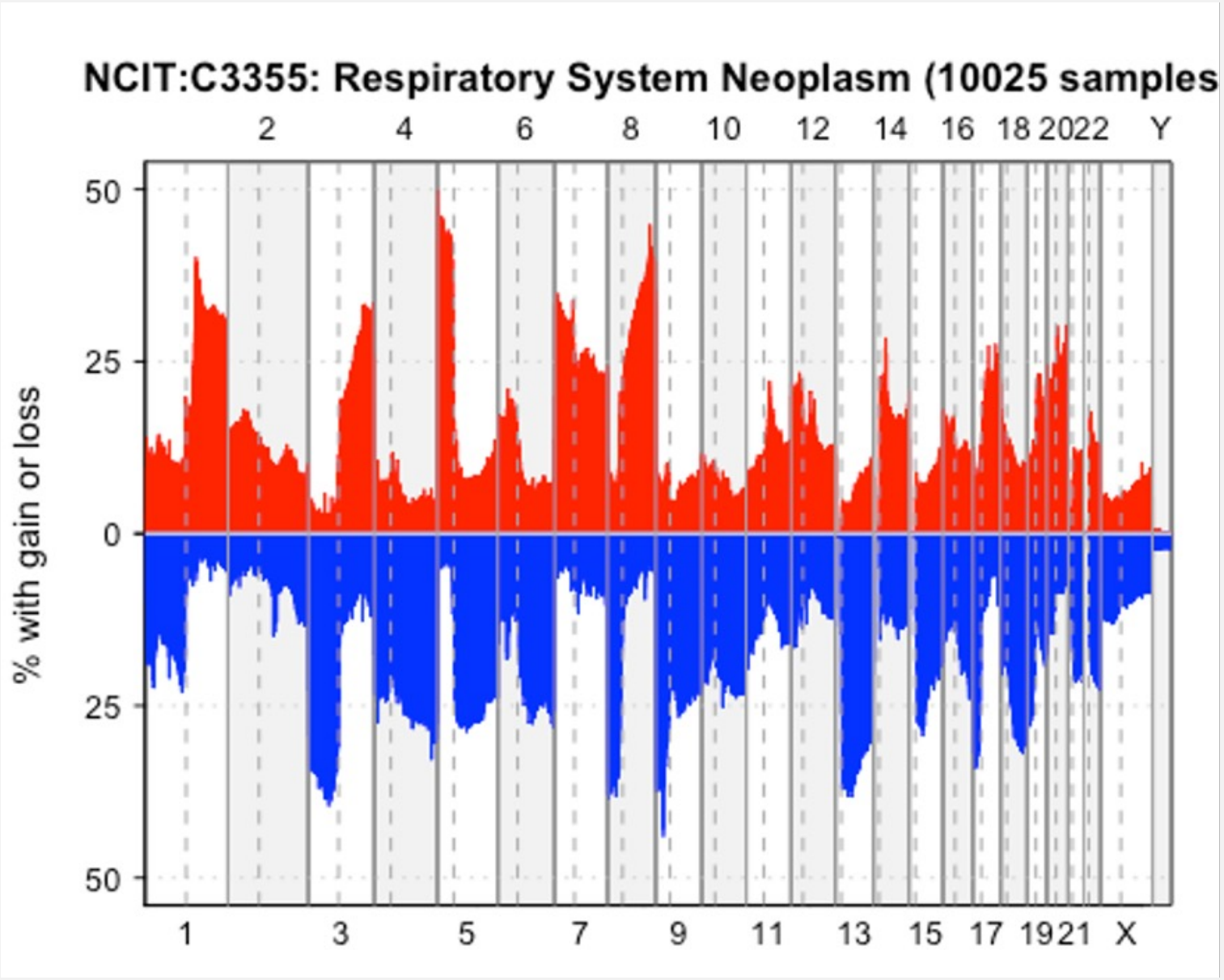
ANALYSIS

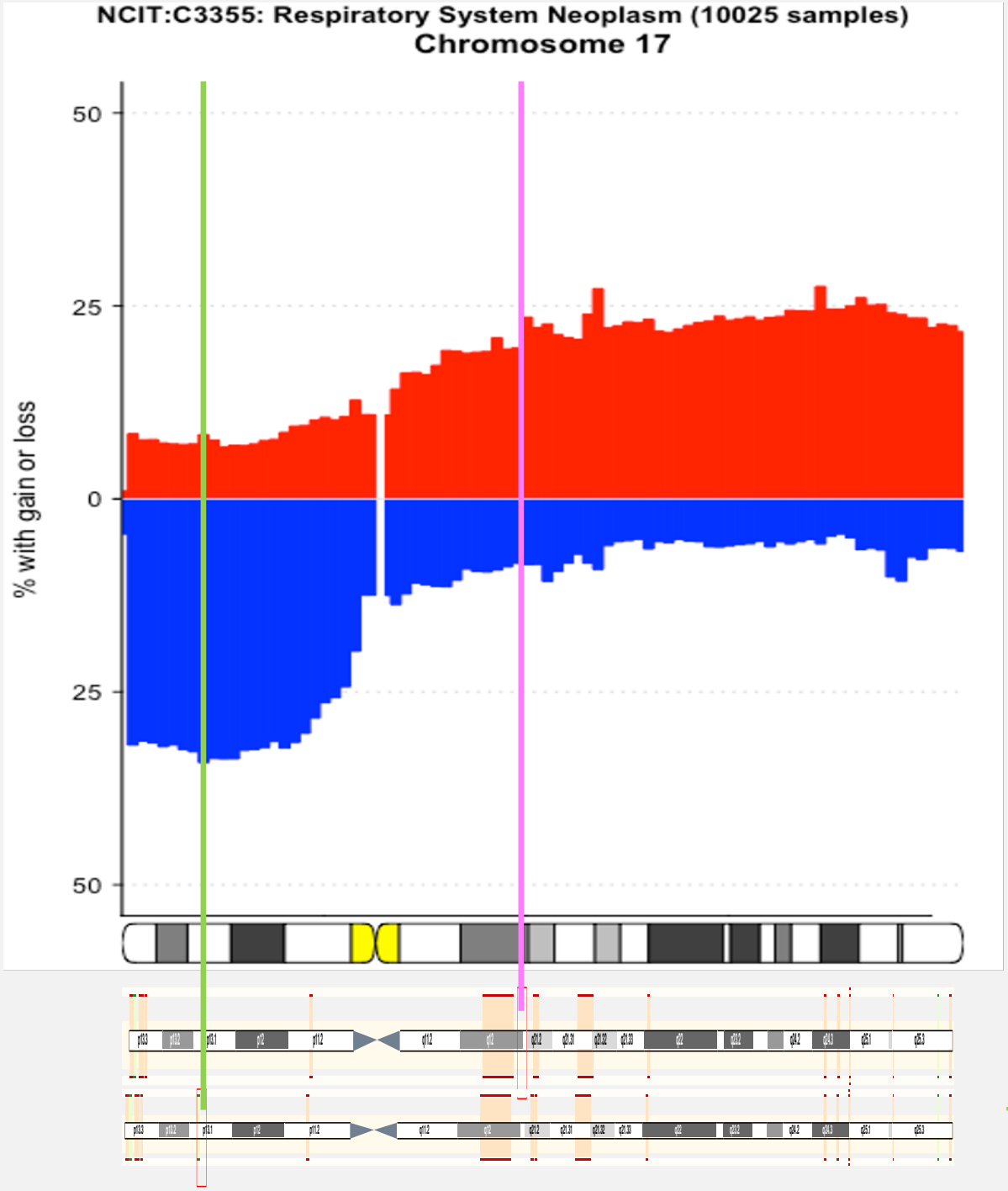

Genes in Comparison
ERBB2
TP53
MYC
CDKN2A
(134)
(102)
(110)
(99)
Survival
1.0
0.8
0.6
0.4
0.2
0
25
50
75
100
125
150
175
200
Follow Up (Months)

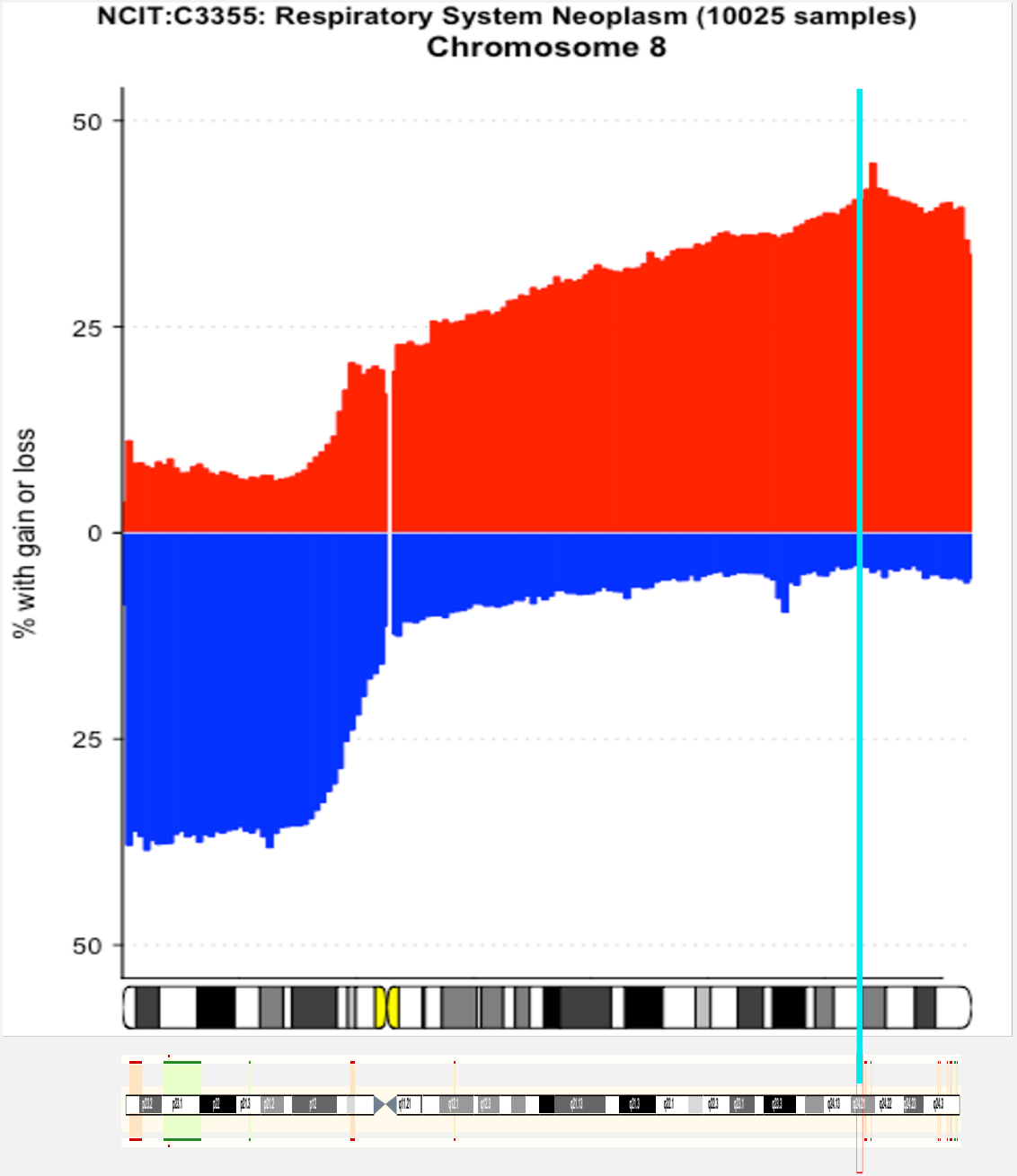


Squamous cell lung Carcinoma (176)
Lung Adenocarcinoma (175)
Lung Carcinoid Tumor (5)
Lung large cell Carcinoma (11)
Lung small cell Carcinoma (44)
Lung large cell neuroendocrine carcinoma (28)
Lung adenosquamous carcinoma (6)

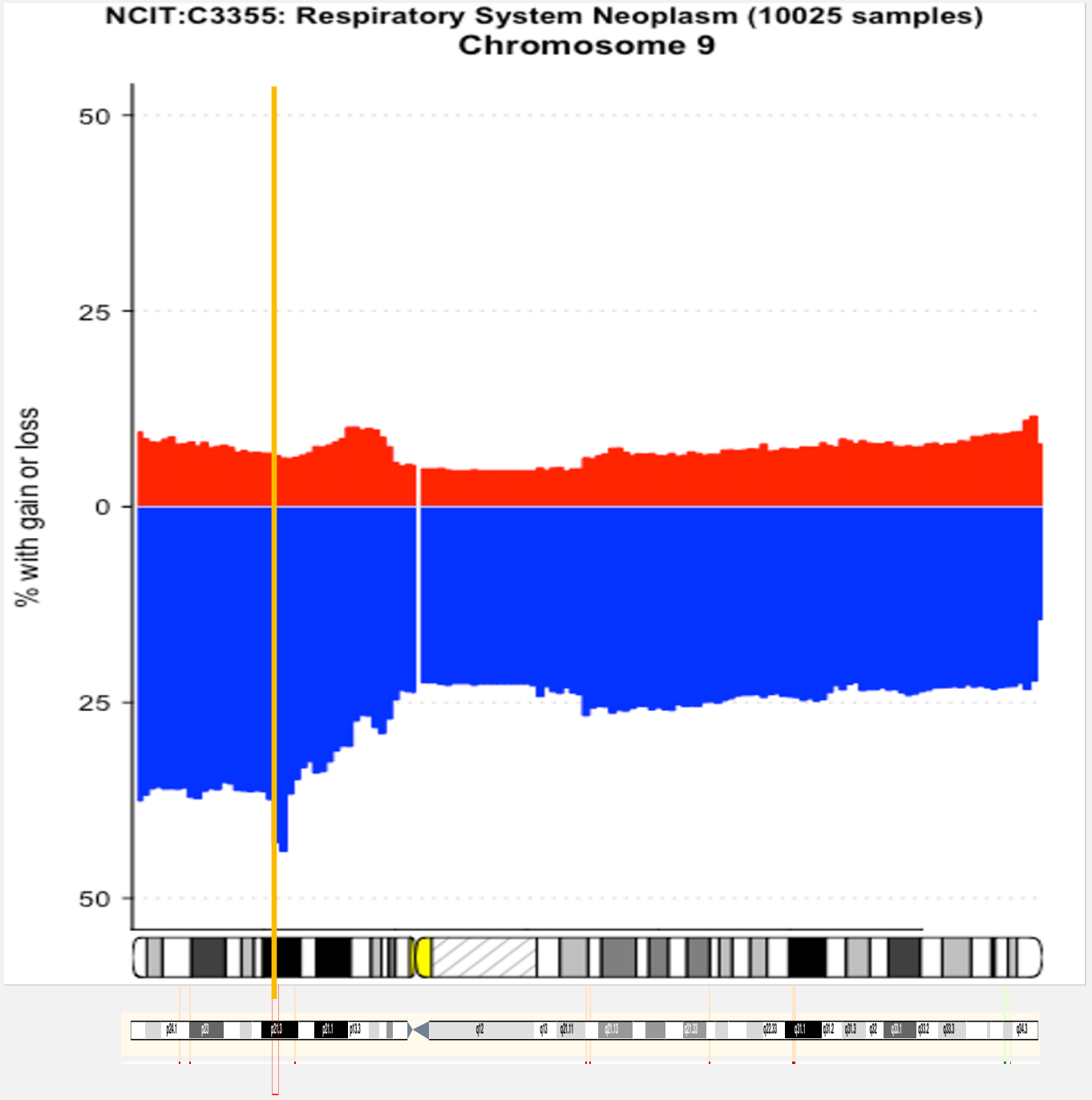

Sexes in Comparison (all genes)
M
F
(322)
(123)
Survival
1.0
0.8
0.6
0.4
0.2
0
25
50
75
100
125
150
175
200
Follow Up (Months)


NCIT:C3355: Respiratory System Neoplasm (10025 samples
2 4 6 8 10 12 14 16 18 2022 Y
50
25
0
25
50
% with gain or loss
1 3 5 7 9 11 13 15 17 19 21 X


NCIT:C3355: Respiratory System Neoplasm (10025 samples)
Chromosome 17
50
25
0
25
50
% with gain or loss
ERBB2
TP53


NCIT:C3355: Respiratory System Neoplasm (10025 samples)
Chromosome 8
% with gain or loss
50
25
0
25
50

MYC


NCIT:C3355: Respiratory System Neoplasm (10025 samples)
Chromosome 9
% with gain or loss
50
25
0
25
50

CDKN2A

SUMMARY

- Kaplan meier plots are difficult to interpret with only little data
- The survivalrate of Lung small cell Carcinoma is worst of the different subtypes
- Females seem to have a slightly higher chance of surival than males
- In oncogenes occurs copy number gain
- In tumor supressor genes occurs copy number loss

SOURCES

- [1] https://ncithesaurus.nci.nih.gov/ncitbrowser/pages/concept_details.jsf?dictionary=NCI_Thesaurus&version=22.04d&code=C3355&ns=ncit&type=all&key=null&b=1&n=0&vse=null

- [2] https://wvcancercenter.com/specific-cancers/respiratory-cancer-facts/

PICTURES

- [i] https://lcfamerica.org/wp-content/uploads/2020/10/type-of-cancer-adenocarcinoma-1024x780-1.png